

CLAIMS

What is claimed is:

1. A process for the preparation of 2-chloro-1,1,1,3,3,3-heptafluoropropane, comprising:

- 5 (a) contacting a mixture comprising hydrogen fluoride, chlorine, and at least one starting material selected from the group consisting of halopropenes of the formula $CX_3CCl=CX_2$ and halopropanes of the formula the $CX_3CClYCX_3$, wherein each X is independently selected from the group consisting of F and Cl, and Y is selected from the group consisting of H, Cl and F, provided that the number of X and Y which are F totals no more than six, with a chlorofluorination catalyst in a reaction zone to produce a product mixture comprising $CF_3CClFCF_3$, HCl, HF, and underfluorinated halogenated hydrocarbon intermediates;
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wherein said chlorofluorination catalyst comprises at least one chromium-containing component selected from (i) a crystalline alpha-chromium oxide where at least 0.05 atom % of the chromium atoms in the alpha-chromium oxide lattice are replaced by nickel, trivalent cobalt or both nickel and trivalent cobalt, provided that no more than 2 atom % of the chromium atoms in the alpha-chromium oxide lattice are replaced by nickel and that the total amount of chromium atoms in the alpha-chromium oxide lattice that are replaced by nickel and trivalent cobalt is no more than 6 atom % , and (ii) a fluorinated crystalline oxide of (i).

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2. The process of Claim 1 further comprising

- (b) separating the product of step (a) to recover $CF_3CClFCF_3$ as a product and to obtain underfluorinated halogenated hydrocarbon intermediates; and
- 30 (c) returning underfluorinated halogenated hydrocarbon intermediates obtained in step (b) back to the step (a) reaction zone.

3. A process for the manufacture of a mixture of CF_3CHFCF_3 and $CF_2=CFCF_3$ by reacting a starting mixture comprising $CF_3CClFCF_3$ and hydrogen in the vapor phase at an elevated temperature, optionally in the presence of a hydrogenation catalyst, characterized by preparing the $CF_3CClFCF_3$ by the process of Claim 1.

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